ORM 1-0

MARINE CORPS INSTITUTE

OPERATIONAL RISK MANAGEMENT

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Operational Risk Management

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Preface

ORM 1-0 applies across the wide range of Marine Corps operations. It explains the principles, procedures, and responsibilities to successfully apply the *risk management process* to conserve combat power and resources. The manual applies to both Marine Corps and civilian personnel during all Marine Corps activities, including joint, multinational, and interagency environments.

The manual is intended to help commanders,[1] their staffs, leaders,[2] and managers develop a framework to make risk management a routine part of planning, preparing, and executing operational missions and everyday tasks. This framework will allow Marines to operate with maximum initiative, flexibility, and adaptability. Although the manual's prime focus is the operational Marine Corps, the principles of risk management apply to all Marine Corps activities.

Marine Corps operations—especially combat operations—are demanding and complex. They are inherently dangerous, including tough, realistic training. Managing risks related to such operations requires educated judgment and professional competence. The risk management process allows individuals to make informed, conscious decisions to accept risks at acceptable levels.

This manual is not a substitute for thought. Simply reading it will not make one adept in building protection around a mission.[3] Marines should compare the doctrine herein against their own experience and think about why, when, and how it applies to their situation and area of responsibility. If the doctrine herein is to be useful, it must become second nature.

The proponent of this manual is HQMC Safety Division. Send comments and recommendations directly to HQMC Safety Division, Room 3317, 2 Navy Annex, Washington, DC 20380-1775.

Unless this publication states otherwise, masculine nouns and pronouns do not refer exclusively to men.

1 The term *commander* as used herein refers to personnel in a command position.

2 The term *leader* as used herein refers to commanders, personnel in the chain of command (team, squad, section, platoon leader), and staff members having personnel supervisory responsibility.

3 The term *mission* as used herein includes mission, operation, or task.

Introduction

Safety and operations must intertwine in such a manner that risk management and safety are a part of the planning and execution of all missions, exercises, and daily evolution. Risk awareness must be increased through aggressive training. Safety must become an enduring principle for the Marine Corps.

James L. Jones
General, U.S. Marine Corps
Commandant of the Marine Corps

The Marine Corps' fundamental purpose is to fight and win the nation's wars. For this purpose, the country gives the Marine Corps critical resources, including those most valuable—its sons and daughters. The Marine Corps uses its resources to generate overwhelming combat power to fight and win quickly, decisively, and with minimal losses. The Marine Corps' inherent responsibility to the nation is to protect and preserve its resources—a responsibility that resides at all levels. Risk management is an effective process for preserving resources. It is not an event. It is both an art and a science. Marines use it to identify tactical and accident risks, which they reduce by avoiding, controlling, or eliminating hazards.

Leaders must understand the importance of the process in conserving combat power and resources. Risk management, like reconnaissance and security, is an ongoing process that continues from mission to mission. Within the mission, leaders must know when the process begins and who has responsibility. It must be integral to the military decision. The process is an important means to enhance situational awareness.

Risk decisions are commanders' business. Such decisions are normally based on the next higher commander's guidance on how much risk he is willing to accept and delegate for the mission. Risk decisions should be made at the lowest possible level, except in extreme circumstances. Some training operations may be of such intensity that risk decisions are retained at a higher level.

Both leaders and staffs manage risk. Staff members continuously look for hazards associated with their areas of expertise. They then recommend controls to reduce risks. Hazards and the resulting risks may vary as circumstances change and experience is gained. Leaders and individual Marines become the assessors for ever-changing hazards such as those associated with environment (weather, visibility, and contaminated air, water, and soil), equipment readiness, individual and unit experience, and fatigue. Leaders should advise the chain of command on risks and risk reduction measures.

Chapter 1

Risk Management Fundamentals

Sizing up opponents to determine victory, assessing dangers and distances is the proper course of action for military leaders.

Sun Tzu, The Art of War, "*Terrain*"

Risk management is the process of identifying, assessing, and controlling risks arising from operational factors and making decisions that balance risk costs with mission benefits. Leaders and Marines at all levels use risk management. It applies to all missions and environments across the wide range of Marine Corps operations. Risk management is fundamental in developing confident and competent leaders and units. Proficiency in applying risk management is critical to conserving combat power and resources. Commanders must firmly ground current and future leaders in the critical skills of the five-step risk management process.

Risk is characterized by both the probability and severity of a potential loss that may result from hazards due to the presence of an enemy, adversary, or some other hazardous condition. Perception of risk varies from person to person. What is risky or dangerous to one person may not be to another. Perception influences leaders' decisions. A publicized event such as a training accident or a relatively minor incident may increase the public's perception of risk for that particular event and time—sometimes to the point of making such risks unacceptable. Failure to effectively manage the risk may make an operation too costly—politically, economically, and in terms of combat power (Marines lives and equipment). This chapter presents the background, principles, applicability, and constraints relating to the risk management process.

BACKGROUND

Throughout the history of armed conflict, government and military leaders have tried to reckon with the effect of casualties on policy, strategy, and mission accomplishment. Government and military leaders consider battle losses from different perspectives. However, both must balance the following against the value of national objectives:

- Effects of casualties
- Impact on civilians
- Damage to the environment
- Loss of equipment
- Level of public reaction

War is inherently complex, dynamic, and fluid. It is characterized by uncertainty, ambiguity, and friction.

- *Uncertainty* results from unknowns or lack of information.
- *Ambiguity* is the blurring or fog that makes it difficult to distinguish fact from impression about a situation and the enemy.
- *Friction* results from change, operational hazards, fatigue, and fears brought on by danger.

These characteristics cloud the operating environment; they create risks that affect the Marine Corps' ability to fight and win. In uncertainty, ambiguity, and friction, both danger and opportunity exist. Hence, a leader's ability to adapt and take risks are key traits. Chapter 1 of MCDP 1 *Warfighting* provides information on the challenging circumstances of military operations during conflict. Figure 1-1 depicts the Marine Corps' casualties from nonhostile and hostile actions.

Marine Corps	World War II 1942-1945	Korea 1950-1953	Vietnam 1965-1972	Desert Shield/ Storm 1990-1991
Nonhostile	4,778	242	1,749	44
Hostile	19,733	4,268	13,091	24

Figure 1-1. Nonhostile and Hostile Casualties

PRINCIPLES

The basic principles that provide a framework for implementing the risk management process are—

- *Integrating risk management into mission planning, preparation, and execution.* Leaders and staffs continuously identify hazards and assess both accident and tactical risks. They then develop and coordinate control measures. They determine the level of residual risk for accident hazards in order to evaluate courses of action (COAs). They integrate control measures into staff estimates, operation plans (OPLANs), operation orders (OPORDs), and missions. Commanders assess the areas in which they might take tactical risks. They approve control measures that will reduce risks. Leaders ensure that all Marines understand and properly execute risk controls. They continuously assess variable hazards and implement risk controls.

- *Making risk decisions at the appropriate level in the chain of command.* The commander should address risk guidance in his commander's guidance. He bases his risk guidance on established Marine Corps and other appropriate policies and on his higher commander's direction. He then gives guidance on how much risk he is willing to accept and delegate. Subordinates seek the higher commander's approval to accept risks that might imperil the next higher commander's intent.

Accepting no unnecessary risk. Commanders compare and balance risks against mission expectations and accept risks only if the benefits outweigh the potential costs or losses. Commanders alone decide whether to accept the level of residual risk to accomplish the mission.

APPLICABILITY

Risk management applies to all situations and environments across the wide range of Marine Corps operations, activities, and processes. Risk management is useful in developing, fielding, and employing the total Marine Corps force. Figure 1-2 summarizes the key aspects of risk management.

Risk management assists the commander or leader in—

- Conserving lives and resources and avoiding unnecessary risk. Making an informed decision to implement a COA.
- Identifying feasible and effective control measures where specific standards do not exist.
- Providing reasonable alternatives for mission accomplishment.

Risk management does not—

- Inhibit the commander's and leader's flexibility and initiative. Remove risk altogether, or support a zero defects mindset. Require a GO/NO-GO decision.
- Sanction or justify violating the law.
- Remove the necessity for standard drills, tactics, techniques, and procedures.

Figure 1-2. Key Aspects of Risk Management

DEVELOPMENT

Development concerns include force design, manpower allocation, training and training developments, and combat and materiel developments (equipment and weapons systems) and battle laboratories.

Force Design

Concerns include risks introduced in trade-off decisions that involve the design and equipping of—

- Tables of organization and equipment (TOE).
- Modification tables of organization and equipment (MTOE).
- Tables of distribution and allowances (TDA) organizations.

Manpower Allocations

Concerns include shortfalls in manning that put unit readiness and full use of combat system capabilities at risk.

Training and Training Developments

Concerns include hazardous and critical training tasks and feasible risk reduction measures that provide leaders with the flexibility to safely conduct tough, realistic training.

Combat and Materiel Developments and Battle Laboratories

Concerns include providing a means to assist in making informed trade-off decisions such as—

- Balancing equipment form, fit, and function.
- Balancing the durability and cost of equipment and spare parts against their reliability, availability, and maintainability requirements.
- Determining the environmental impact.
- Determining whether to accept systems with less than the full capabilities prescribed in requirement documents and experimental procedures.

DODDIR 5000.1, DODDIR 5000.2, DODDIR 5000.2-R, and DODDIR 5000.35 provide details on risk management application in the Marine Corps materiel acquisition process.

FIELDING

Fielding concerns include personnel assignments, sustainment and logistics, training, and base operations.

Personnel Assignments

Concerns include making informed decisions in assigning replacement personnel. For example, a risk is associated with assigning a 0352 Tow Gunner as a replacement for a 0341 Mortar Crewmember.

Sustainment and Logistics

Concerns include enhancing one's ability to determine support requirements, the order in which they should be received, and the potential impact of logistics decisions on operations.

Training

Concerns include helping leaders determine the—

- Balance between training realism and unnecessary risks in training.
- Impact of training operations on the environment.
- Level of proficiency and experience of Marines and leaders.

Base Operations

Concerns include prioritizing the execution of base operations functions to get the most benefit from available resources. Examples include allocating resources for pollution prevention, correcting safety and health hazards, and correcting violations of environmental protection regulations.

EMPLOYMENT

Employment concerns include force protection and deployment, operations, and redeployment.

Force Protection

Concerns include developing a plan that identifies threats and their associated hazards and balancing resource restraints against the risk.

Deployment, Operations, and Redeployment

Concerns include—

- Analyzing the factors of mission, enemy, terrain, troops-time available, space, and logistics (METT-TSL) to determine both tactical and accident risks and appropriate risk reduction measures.
- Determining the correct units, equipment composition, and sequence.
- Identifying controls essential to safety and environmental protection.

CONSTRAINTS

Risk management does not convey authority to violate the law-of-land warfare or deliberately disobey local, state, national, or host nation laws. It does not justify ignoring regulatory restrictions and applicable standards. Neither does it justify bypassing risk controls required by law, such as life safety and fire protection codes, physical security, transport and disposal of hazardous material and waste, or storage of classified material. Commanders may not use risk management to alter or bypass legislative intent. However, when restrictions imposed by other agencies adversely affect the mission, planners may negotiate a satisfactory COA if the result conforms to the legislative intent.

Risk management assists the commander in complying with regulatory and legal requirements by—

- Identifying applicable legal standards that affect the mission.
- Identifying alternate COAs or alternate standards that meet the intent of the law.
- Ensuring better use of limited resources through establishing priorities to correct known hazardous conditions that will result in projects with the highest return on investment funded first.

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Chapter 2

Risk Management Process

The practice of concentrating combat power toward the main effort necessitates the willingness to accept risk elsewhere.

MCDP 1 *Warfighting*

This chapter provides the essence of the five-step risk management process. It illustrates the application of each step to military operations through the factors of METT-TSL.

THE FIVE STEPS: AN OVERVIEW

Risk management is the process of identifying and controlling hazards to conserve combat power and resources. The five steps of risk management are—

- Step 1. Identify hazards
- Step 2. Assess hazards to determine risk
- Step 3. Develop controls and make risk decisions
- Step 4. Implement controls
- Step 5. Supervise and evaluate

This five-step process is integrated into the decision-making process (BAMCIS) as shown in Figure 2-1.

- Begin Planning
- Arrange for Reconnaissance
- Make Reconnaissance
- Complete the Plan
- Issue the Order
- Supervise

Decision-Making Process (BAMCIS)	Risk Management Steps				
	Step 1 Identify Hazards	**Step 2** Assess Hazards	**Step 3** Develop Controls/Make Risk Decision	**Step 4** Implement Controls	**Step 5** Supervise and Evaluate
Mission Receipt	X				
Begin Planning	X	X			
Arrange for Reconnaissance	X	X	X		
Make Reconnaissance	X	X	X		
Complete the Plan		X	X		
Issue the Order				X	
Supervise					X
Each "X" represents when each of the five risk management steps would apply to different phases of the decision-making process					

Figure 2-1. Risk Management Steps Correlated With The Decision-Making Process

Risk decisions should be based upon awareness rather than mechanical habit. Leaders should act on a keen appreciation for the essential factors that make each situation unique instead of from conditioned response. Throughout the entire operational continuum, the commander must consider U.S. government civilians and contract support personnel in his risk management process. Hazards can exist regardless of enemy or adversary actions, in areas with no direct enemy contact and in areas outside the enemy or adversary's influence. The two types of risk that exist across the wide range of Marine Corps operations are *tactical risks* and *accident risks.*

- *Tactical risk* is risk concerned with hazards that exist because of the presence of either the enemy or an adversary. It applies to all levels of war and across the spectrum of operations.

- *Accident risk* includes all operational risk considerations other than tactical risk. It includes risks to the friendly force. It also includes risks posed to civilians by an operation, as well as an operations impact on the environment. It can include activities associated with hazards concerning friendly personnel, civilians, equipment readiness, and environmental conditions.

STEPS 1 AND 2

Together these steps comprise the risk assessment. In Step 1, individuals identify the hazards that may be encountered in executing a mission. In Step 2, they determine the direct impact of each hazard on the operation and prioritize the risks. The risk assessment provides for enhanced situational awareness. This awareness builds confidence and allows Marines and units to take timely, efficient, and effective protective measures.

STEPS 3 THROUGH 5

Steps 3 through 5 are the essential follow-through actions to effectively manage risk. In these steps, leaders balance risk against costs political, economic, environmental, and combat power—and take appropriate actions to eliminate unnecessary risk. During execution, as well as during planning and preparation, leaders continuously assess the risk to the overall mission and to those involved in the task. Finally, leaders and individuals evaluate the effectiveness of controls and provide lessons learned so that others may benefit from the experience.

THE FIVE STEPS APPLIED

STEP 1. IDENTIFY HAZARDS

A *hazard* is an actual or potential condition where the following can occur due to exposure to the hazard:

- Injury, illness, or death of personnel
- Damage to or loss of equipment and property
- Mission degradation

Hazards are sources of danger or risks due to enemy or adversary presence and other conditions not due to enemy or adversary capabilities. Hazards are found in all operational environments. Combat operations, stability operations, base support operations, and training present unique hazards for units involved in these kinds of missions. Hazards are identified during nearly all levels of the decision-making process: *mission receipt, begin planning, arrange for reconnaissance,* and *make reconnaissance.*

The ability of unit leaders and staffs to identify hazards is key. One reality of today's missions is that the aspect of a hazard can change rapidly. Things of little risk initially can quickly become major threats due to unforeseen natural or man-made events. Leaders should be aware of this possibility. Complacency to the fact

that existing controls may not continue to control hazards in rapidly changing situations should be viewed as a hazard in itself.

The factors of METT-TSL provide a sound framework for identifying hazards when planning, preparing, and executing operations. When applying risk management to METT-TSL during mission analysis, leaders and staffs should look for hazards that affect both tactical and accident risks. They must identify all hazards that may present significant risks to the mission.

Mission

Leaders first analyze the assigned mission. They look at the type of mission to be accomplished and consider possible subsequent missions. Certain kinds of operations are inherently more dangerous than others. For example, a deliberate frontal attack, because of the associated movement, is more likely to expose a unit to losses than would a defense from prepared positions. Identifying missions that routinely present great risk is imperative.

Leaders also look for hazards associated with complexity of the plan such as—

- A scheme of maneuver that is difficult to understand or too complex for accurate communications down to the lowest level.
- The impact of operating under a fragmentary order (FragO).

Enemy

Commanders look for enemy capabilities that pose significant hazards to the operation. For example, "What can the enemy do to defeat my operation?" Common shortfalls that can create hazards during operations against an enemy include failure to—

- Assess potential advantages to the enemy provided by the battlefield environment.
- Fully assess the enemy's capabilities.
- Understand enemy collection capabilities and friendly vulnerabilities to those capabilities.
- Accurately determine the enemy's probable COAs.

- Plan and coordinate active ground and aerial reconnaissance activities.
- Disseminate intelligence about the enemy to lower levels.
- Identify terrorist threats and capabilities.

Intelligence plays a critical part in identifying hazards associated with tactical risk. Intelligence-preparation-of-the-battlefield (IPB) is a dynamic staff process that continually integrates new information and intelligence that ultimately becomes input to the commander's risk assessment process. Intelligence assists in identifying hazards during operations by—

- Identifying the opportunities and constraints the battlefield environment offers to threat and friendly forces.
- Thoroughly portraying threat capabilities and vulnerabilities.
- Collecting information on populations, governments, and infrastructures.

Terrain and Weather

In addition to those due to the enemy or adversaries, the most obvious hazards to military operations are due to terrain and weather. Terrain and weather affect the type of hazard encountered. When the enemy uses terrain to his advantage, the risk is clearly tactical. The aspects of terrain and weather may create situations where accident risks predominate. When looking at this from a purely mission perspective, familiarity of the unit with the terrain and its associated environment must be paramount.

Basic issues include—

- How long the unit has operated in the environment and climate.
- Whether the terrain has been crossed before.

Terrain. The five main military aspects of terrain—*observation and fields of fire, cover and concealment, obstacles, key terrain and decisive terrain, and avenues of approach (OCOKA)*—can be used to identify and assess hazards impacting on friendly forces. The terrain analysis includes both map and on-the-ground reconnaissance to identify how well unit capabilities and mission demands can be accommodated by the terrain.

- *Observation and fields of fire.* Hazards associated with this usually involve when the enemy will be able to engage a friendly unit and when friendly unit weapons capabilities allow it to effectively engage the enemy.

- *Cover and concealment.* Hazards associated with cover and concealment are created by the enemy's ability to place direct or indirect fire on friendly forces.

- *Obstacles.* Hazards associated with obstacles may be accident or tactical. They may be due to natural conditions such as rivers or swamps or manmade such as minefields or built-up areas.

- *Key terrain and decisive terrain.* Hazards associated with key or decisive terrain are if the enemy controls such terrain or denies its use to friendly forces.

- *Avenues of approach.* Hazards associated with avenues of approach can affect both tactical and accident risks. Such hazards include conditions where an avenue of approach impedes deployment of friendly combat power or where it supports deployment of enemy combat power.

Weather. Weather works hand-in-hand with terrain to create hazards. To identify weather hazards, Marines must assess the impact on operating systems.

Mistakes include not considering the—

- Adverse effects of heat and cold hazards on the performance of Marines.
- Effects of climate and weather on maintenance of vehicles and equipment before beginning an operation.
- Hazardous effects of weather on the five military aspects of terrain.

Troops

Leaders analyze the capabilities of available friendly troops. Associated hazards impact both the Marine and unit. Key considerations are level of training, manning levels, the condition and maintenance of vehicles and equipment, morale, availability of supplies and services, and the physical and emotional health of Marines. All Marines must be vigilant to the fact that hazards in

these areas can adversely affect a mission, even when all tactical considerations point to success. Mission failure can be caused by—

- *Hazards to the physical and emotional health of Marines.* Inadequate sanitation facilities, water purification capabilities, medical attention, and evacuation capabilities are key hazards that can arise from incomplete logistical planning. Care of troops requires long-range projections of all classes of supply, with close monitoring of mission changes that could impact availability or depletion of supplies. When beginning an operation immediately upon arriving in theater, hazards include not implementing measures to help Marines overcome fatigue or acclimatize them to the geographical area and associated climate.

- *Hazards to task organization or units participating in an operation.* Hazards include how long units have worked together under a particular command relationship. During stability operations, task organizations may change often. Hazards include poor communication; unfamiliarity with higher headquarters SOPs, and insufficient combat power to accomplish the mission.

- *Hazards associated with long-term missions.* Long-term missions include nation building, peacekeeping, or insurgency/counter-insurgency operations. Hazards associated with these missions include the turmoil of personnel turnover, lack of continuity of leadership, inexperience, and lack of knowledge of the situation and the unit's operating procedures. An especially insidious hazard is critical-skills atrophy that results from not performing mission essential task list (METL)-related missions.

Time Available

The hazard is insufficient time to plan, prepare, and execute operations. Planning time is always at a premium. Leaders routinely apply the one-third/two-thirds rule to ensure their subordinate units are given maximum time to plan. Failure to accomplish a mission on time can result in shortages of time for subordinate and adjacent units to accomplish their mission.

Civilians

The commander's legal responsibility is to consider hazards to, and safeguarding of, civilians in his area of operations. *Civilians* include nongovernmental organizations, private voluntary organizations, U.S. Government civilians, foreign na-

tional civilians, the media, and dislocated civilians put at risk by military operations.

The commander must consider hazards that can occur across the range of operations, such as in a —

- *Wartime environment.* The commander must consider the hazard of collateral damage that may result in creating new adversaries.

- *Peacetime environment.* The commander must consider the political attitudes and previous actions of civilians in identifying hazards to friendly forces and the populace itself.

Adversaries are hostile elements other than the enemy that may be encountered during any operation. They present additional hazards. They may be organized opposition or individuals that challenge authority. They may include such diverse elements as rioters, criminals, rogues, or gangs that might want to harass a peace enforcement mission.

STEP 2. ASSESS HAZARDS

Step 2 completes the risk assessment. Risk is the chance of hazard or bad consequences. This step examines each hazard in terms of probability and severity to determine the risk level of one or more hazardous incidents that can result from exposure to the hazard. This step is conducted during four steps of the decision-making process—*begin planning, arrange for reconnaissance, make reconnaissance,* and *complete the plan.* This step is also conducted after controls are developed.

The incident must be credible in that it must have a reasonable expectation of happening. The end result is an estimate of risk from each hazard and an estimate of the overall risk to the mission caused by hazards that cannot be eliminated. Leaders must also assess the risk to civilians posed by the operation. They may need to assess the operations' impact on the environment. This step is conducted in three substeps.

Substep A

Leaders and staffs assess each hazard in relation to the *probability* of a hazardous incident. The probability levels estimated for each hazard may be based on the mission, COAs being developed and analyzed, or frequency of a similar event. Figure 2-2 provides a summary of the four degrees of probability. The letters in parentheses following each degree (A through D) provide a symbol for depicting probability. For example, the letter *A* represents a *likely* probability.

DEGREE OF PROBABILITY	DESCRIPTION
Likely (A)	Likely to occur immediately or within a short period of time. Expected to occur frequently to an individual item or person or continuously to a fleet inventory, or group.
Probably (B)	Probably will occur in time. Expected to occur several times to an individual item or person or frequently to a fleet, inventory, or group.
May (C)	May occur in time. Can reasonably be expected to occur some time to an individual item or person or several times to a fleet, inventory, or group.
Unlikely (D)	Unlikely to occur.

Figure 2-2. Hazard Probability

Substep B

Substep B addresses the *severity* of each hazard. It is expressed in terms of—

- Degree of injury or illness.
- Loss of or damage to equipment or property.
- Environmental damage.
- Other mission-impairing factors such as lost combat power.

The degree of severity estimated for each hazard may be based on knowledge of the results of similar past events. Figure 2-3 provides a summary of the four degrees of hazard severity. Hazard severity categories are assigned Roman numerals to depict each degree of severity (I through IV) in descending order. For example, Category I represents the highest degree of severity and Category IV represents the lowest degree of severity.

CATEGORY	DEGREE OF SEVERITY
Category I	The hazard may cause death, loss of facility/asset or result in grave damage to national interests.
Category II	The hazard may cause severe injury, illness, property damage, damage to national or service interests, or degradation to efficient use of assets.
Category III	The hazard may cause minor injury, illness, property damage, damage to national, service or command interests or degradation to efficient use of assets.
Category IV	The hazard presents a minimal threat to personnel safety or health, property, national, service or command interests, or efficient use of assets.

Figure 2-3. Hazard Severity

Substep C

In this substep leaders and staffs expand what they understand about probable hazardous incidents into estimates of levels of risk for each identified hazard and an estimate of the overall risk for the operation. Estimating risk follows from examining the outcomes of Substeps A and B; that is, both the probability and severity of hazardous incidents. This substep is more art than science. Much depends on the use of historical lessons learned, intuitive analysis, experience, and judgment. Uncertainty can arise in the assessment of both the probability and severity of a hazardous incident. Uncertainty results from unknowns about a situation; from incomplete, inaccurate, undependable, or contradictory information; and from unforeseen circumstances. Therefore, assessment of risk requires good judgment.

Figure 2-4 is a standardized matrix that can be used to assist in this process. Leaders and staffs enter the estimated degree of severity and probability for each hazard in Substeps A and B from the severity row and probability column, respectively. The point where the severity row and probability column intersect defines the level of risk, and is known as the Risk Assessment Code (RAC).

Risk Assessment Matrix					
		PROBABILITY			
SEVERITY	CATEGORY	A	B	C	D
	I	1	1	2	3
	II	1	2	3	4
	III	2	3	4	5
	IV	3	4	5	5

Figure 2-4. Risk Assessment Matrix

The RAC combines the elements of hazard probability and hazard severity, and is expressed as a single Arabic number that corresponds to varying levels of risk, as shown in Figure 2-5. For example, if the hazard severity is estimated at category II and the hazard probability is estimated at probably (B), the risk assessment code is serious (2).

Risk Assessment Code (RAC)	
Number	**Corresponding Level of Risk**
1	Critical
2	Serious
3	Moderate
4	Minor
5	Negligible

Figure 2-5. Risk Assessment Code (RAC)

STEP 3. DEVELOP CONTROLS AND MAKE RISK DECISIONS

By its nature, uncertainty invariably involves the estimation and acceptance of risk.

MCDP 1 *Warfighting*

Step 3 is accomplished in two substeps: develop controls and make risk decisions. This is done during *arrange for reconnaissance, make reconnaissance,* and *complete the plan* steps of the decision-making process.

Substep A: Develop Controls

After assessing each hazard, leaders develop one or more controls that either eliminate the hazard or reduce the risk (probability and/or severity) of a hazardous incident. When developing controls, they consider the reason for the hazard not just the hazard itself.

Types of Controls. Controls can take many forms, but they fall into three basic categories—*educational controls*, *physical controls*, and *avoidance.*

- *Educational controls.* These controls are based on the knowledge and skills of the unit and individuals. Effective control is implemented through individual and collective training that ensures performance to standard.

- *Physical controls.* These controls may take the form of barriers, guards, or signs to warn individuals and units that a hazard exists. Additionally, special controller or oversight personnel responsible for locating specific hazards fall into this category.

- *Avoidance.* These controls are applied when leaders take positive action to prevent contact with an identified hazard.

Criteria for Controls. To be effective, each control developed must meet the following criteria:

- *Suitability.* It must remove the hazard or mitigate (reduce) the residual risk to an acceptable level.

- *Feasibility.* The unit must have the capability to implement the control.

- *Acceptability.* The benefit gained by implementing the control must justify the cost in resources and time. The assessment of acceptability is largely subjective. Figure 2-6 gives criteria for determining acceptability of controls for each identified hazard.

Support	Availability of adequate personnel, equipment, supplies, and facilities necessary to implement suitable controls.
Standards	Guidance and procedures for implementing a control are clear, practical, and specific.
Training	Knowledge and skills are adequate to implement a control.
Leadership	Leaders are competent enough to implement a control.
Individual	Individual Marines are sufficiently self-disciplined to implement a control.

Figure 2-6. Criteria for Determining Acceptability of Controls

Examples of Controls. Examples of controls include—

- Engineering or designing to eliminate or control hazards.
- Selecting a course of action that avoids identified hazards.
- Limiting the number of people and the amount of time they are exposed to hazards, consistent with mission requirements.
- Selecting personnel with appropriate mental, emotional, and physical capabilities.
- Providing protective clothing, equipment, and safety and security devices.
- Providing such services as adequate sanitation facilities and water purification capabilities.
- Providing warning signs and signals.
- Scheduling vehicle and aircraft silhouette drills.
- Planning training, including rehearsals, battle drills, and so forth.
- Programming communications links for key civilian organizations.
- Establishing battlefield controls such as areas of operations and boundaries, direct fire control measures, fire support coordination measures, rules of engagement, airspace control measures, bridge classification, traffic control, and so forth.
- Developing terrorist attack warning systems and response plans.

The key is to specify who, what, where, when, and how each control is to be used. For example—

- Planning and scheduling intensive threat and friendly vehicle identification refresher training for all antiarmor and air defense weapons crews before the mission reduces the probability of engaging a friendly vehicle or aircraft (fratricide).

- Programming installation of crashworthy passenger seats in the CH-53 and CH-46, when mission circumstances do not indicate their removal, can reduce the severity of injuries in crashes.

- Requiring Marines to wear flak vests and helmets during movement to contact, or when riding in vehicles in areas where enemy fire is likely, can reduce the probability and severity of a wound from small arms fire or fragments.

- Establishing strong continuity documents and planning overlap tours for key leaders facilitate smooth transitions during extended operations.

Residual Risk. Once the responsible leader develops and accepts controls, he determines the residual risk associated with each hazard and the overall residual risk for the mission.

- *Residual risk* is the risk remaining after controls have been selected for the hazard. Residual risk is valid (true) only if the controls for it are implemented. As controls for hazards are identified and selected, the hazards are reassessed as in Step 2 and the level of risk is then revised. This process is repeated until the level of residual risk is acceptable to the commander or leader or cannot be further reduced.

- *Overall residual risk* of a mission must be determined when more than one hazard is identified. The residual risk for each of these hazards may have a different level, depending on the assessed probability and severity of the hazardous incident. Overall residual mission risk should be determined based on the incident having the greatest residual risk. Determining overall mission risk by averaging the risks of all hazards is not valid. If one hazard has high risk, the overall residual risk of the mission is high, no matter how many moderate or low risk hazards are present.

Substep B: Make Risk Decision

A key element of the risk decision is determining if the risk is justified. The commander must compare and balance the risk against mission expectations. He alone decides if controls are sufficient and acceptable and whether to accept the resulting residual risk. If he determines the risk level is too high, he directs the development of additional controls or alternate controls, or he modifies, changes, or rejects the course of action.

Leaders can use the risk assessment matrix in Figure 2-4—in conjunction with their commanders' guidance—to communicate how much risk they are willing to delegate. For example, a commander may place constraints on his subordinates that restrict their freedom of action to accept risk in instances where the risk might imperil his intent, higher commander's intent, or a critical capability of the unit.

STEP 4. IMPLEMENT CONTROLS

Leaders and staffs ensure that controls are integrated into SOPs, written and verbal orders, mission briefings, and staff estimates. The critical check for this step, with oversight, is to ensure that controls are converted into clear, simple execution orders understood at all levels. Implementing controls includes coordination and communication with—

- Appropriate superior, adjacent, and subordinate units and those executing the mission.
- Civilian agencies that are part of the force.

The media, NGOs, and PVOs must be included in coordination when their presence impacts or is impacted by the force.

Leaders must explain how supervisors will implement controls. Examples of control implementation include—

- Conducting vehicle and aircraft silhouette drills.
- Conducting rehearsals, battle drills, and so forth.
- Conducting intensive threat and friendly vehicle identification refresher training for all antiarmor and air defense weapons crews.
- Conducting orientation for replacement personnel.
- Installing and maintaining communications links for key civilian organizations.
- Operating in convoys of four vehicles minimum.
- Carrying weapons and wearing flak jackets and helmets when outside secure compounds.

STEP 5. SUPERVISE AND EVALUATE

Leaders must supervise the execution of their orders. The more untrained the troops, the more detailed this supervision must be.

Infantry in Battle, 1939

During mission preparation and execution, leaders must ensure that their subordinates understand how to execute risk controls. Leaders continuously assess risks during the conduct of operations, especially during long-term missions. Leaders maintain situational awareness. They guard against complacency to ensure that risk control standards are not relaxed or violated. To gain insight into areas needing improvement, leaders must continuously evaluate their units' effectiveness in managing mission risks.

Supervise

Leaders supervise mission rehearsal and execution to ensure standards and controls are enforced. Techniques may include spot-checks, inspections, situation reports and brief-backs, buddy checks, and close supervision. During the mission, leaders continuously monitor controls to ensure they remain effective, and modify them as necessary. Leaders and individuals anticipate, identify, and assess new hazards to implement controls. They continually assess variable hazards such as fatigue, equipment serviceability, and the environment. Leaders modify controls to keep risks at an acceptable level.

During sustained operations, leaders continue planning to ensure that controls emplaced at the beginning of the mission apply to changes in the operation's current situation and to hazardous conditions. Leaders must maintain an extraordinary degree of discipline. They must avoid complacency, which can result from boredom and overconfidence. Leaders must ensure that their Marines do not relax their vigilance due to performing repetitive tasks—despite changing roles and missions, unit turbulence and turnover, and declining skills. Leaders maintain a close overwatch on controls put in place to reduce risks over a prolonged period. For example, during stability operations, landmine hazards may not be solved in the near term, but may require continual attention. Other examples of long-term hazards that may be encountered include—

- Climatic extremes
- NBC and hazardous waste contamination
- Diseases native to a particular area of operation or indigenous population
- Terrorist threats

Evaluate

After a mission, leaders and individuals evaluate how well the risk management process was executed. They—

- Determine how to ensure that successes are continued to the next mission.
- Capture and disseminate lessons learned so that others may benefit from the experience.
- Consider the effectiveness of the risk assessment in identifying and accurately assessing the probability and severity of hazards that resulted in mission degradation.
- Determine whether the level of residual risk of each hazard, and of the overall mission were accurately estimated.
- Evaluate the effectiveness of each control in reducing or removing risk, including whether controls were effectively communicated, implemented and enforced.

Leaders and individuals determine why some controls were ineffective and what should be done when the hazard is encountered again. A control may be altered; the way it is implemented or supervised may be changed to make it effective; or a completely different control may be more effective. Leaders must energize the system to fix systemic problems that hinder combat effectiveness.

The risk management process continues throughout a mission as well as from mission to mission. It is integral to the decision-making process (BAMCIS). Its application requires good judgment and intuitive analysis borne of confidence, experience, and situational awareness.

TOOLS AND PITFALLS

Units train to a standard. They operate and train regardless of the degree of real or perceived difficulty. Risk reduction begins with commanders identifying their METLs. Commanders use the risk management process to assess the degree of risk related to each METL their unit must perform. From this assessment, risk-reducing standard operating procedures evolve.

Pitfalls arise when risk management tools are used without adaptation to the factors of METT-TSL. Using a standardized risk assessment card or checklist may be of some value initially in the mission analysis and course of action development or in cases where a routine task is performed in an unchanging environment or static situation. However, such a tool used alone will not likely identify all hazards for every mission in a changing operational environment.

Completing the risk assessment alone, but failing to identify effective controls, usually results in a GO/NO-GO decision based on the initial risk. If the risk assessment does not accurately identify the hazards and determine the level of residual risk, the leader is likely to make his risk decision based upon incomplete or inaccurate information. If the risk assessment places missions in a routine, low-risk category, the commander may not be informed of a risk decision resulting in an accepted risk level that could imperil his higher commander's intent or other affected organizations. The risk management process is intended to provide reasonable controls to support mission accomplishment without exposing the force to unnecessary residual risk.

Chapter 3

Risk Management Implementation

The key to achieving our safety goals is to instill in our Corps the idea that Marines, of all ranks, must maintain a constant vigil against unsafe actions, practices or situations. They must be willing to voice their concerns. Supporting this attitude shift is a commitment to make accountability the cornerstone of our efforts as we seek to revolutionize our approach to safety. Responsibility for safety belongs to every Marine.

General James L. Jones
Commandant, U.S. Marine Corps

This chapter presents the moral and ethical implications of risk management. It outlines essential responsibilities and considerations necessary to effectively integrate and assess risk management within the Marine Corps. Leaders should tailor these essentials to develop specific how-to procedures suited to their circumstances, available resources, and mission.

MORAL AND ETHICAL IMPLICATIONS FOR LEADERS

To be successful, risk management must be underwritten by the chain of command. Leaders should not expect that all missions would be accomplished with zero defects—free from errors, flaws, or less-than-perfect performance. Demanding such rigid standards leads to over supervision and paralysis; it produces timid leaders, afraid to make tough decisions in crisis and unwilling to take risks necessary for success in military operations. A zero defects mindset creates conditions that will lead inevitably, in the larger sense, to failure in battle and higher casualties. Leaders are morally bound to support a subordinate's decision to accept risks that are within his commander's intent and guidance, as he understands it.

Leaders accept that things may go wrong, even with certain knowledge that a subordinate has done all within his power to prevent an incident. In such an event, the leader steps forward and accept the responsibility along with his subordinate. Furthermore, risk management does not justify taking actions to facilitate an unethical or immoral action. FMFM 1-0 addresses the moral and ethical aspects of protecting the force within the overall framework of how to apply leadership at all levels to meet mission requirements.

I am committed to halting the accidental deaths and injures in the Marine Corps. To that end, commanders must embrace the idea that safety is an element of force protection. By doing so, we will save the lives of our Marines and increase the combat readiness of the Corps. Both are worthy goals.

General James L. Jones
Commandant, U.S. Marine Corps

RESPONSIBILITIES

One critical task for all operations is minimizing risk. Every military plan must make this a priority. It is an inherent part of every mission and a basic responsibility of commanders. Whether for training or operational deployments, commanders issue clear risk guidance. Minimizing risk and eliminating unnecessary risk—is the responsibility of everyone in the chain of command. This responsibility runs from the highest commander, through his subordinate leaders, to the Marine.

The commander and his staff must look at tactical risks and accident risks. They use the same risk management process to manage both types. Commanders—with the assistance of their leaders and staffs—manage accident risks. Commanders determine how and where they are willing to take tactical risks.

Leaders and Marines at all levels are responsible and accountable for managing risks by ensuring that hazards and associated risks are—

- identified during planning, preparation, and execution of operations.
- controlled during preparation and execution of operations.

Marines are responsible for executing risk controls to standards. They must continuously assess variable hazards such as fatigue, equipment service-ability, and the environment. They must take care of one another and make risk decisions consistent with the higher commander's guidance.

Sometimes commanders are not properly advised in situations where the assumption of risk may affect or imperil their units, the intent of their

higher commander, or the operations of an adjacent unit. This is most often attributed to—

- The *risk denial syndrome* in which leaders do not want to know of the risk.
- A staff member who believes that the risk decision is part of his job and does not want to bother his commander or section leader.
- A subordinate who does not fully understand the higher commander's guidance.
- Complacency—outright failure to recognize a hazard or the level of risk involved, or overconfidence in one's abilities or the unit's capabilities to avoid or recover from a hazardous incident.
- Use of a standardized risk assessment tool, such as a risk assessment card, that is not tailored to the unit's mission or adapted to the factors of METT-TSL and which may put missions in the routine low-risk category.

COMMANDERS

The commander directs the organization and sets priorities and the command climate (values, attitudes, and beliefs). Successful preservation of combat power requires embedding risk management into unit behavior. This requires commitment and creative leadership—innovative planning, careful management. It also requires the chain of command's demonstrated support of the risk management process. Only then will the Marine Corps begin to capture the full power of risk management. Commanders establish a command climate favorable for risk management integration by—

- Demonstrating consistent and sustained risk management behavior through leading by example—habitually doing risk management—and actively participating throughout the risk management process.
- Providing clear guidance, when appropriate, on where or what risk to accept.
- Obtaining and providing to subordinates the necessary assets to control risk.
- Knowing their own limitations, their leaders' and Marines' limitations, and their unit's capabilities.
- Preventing a zero-defects mindset from creeping into their command's culture.
- Allowing subordinates to make mistakes and learn from them.
- Demonstrating full confidence in subordinates' mastery of their trade and their ability to execute a chosen course of action.

- Keeping subordinates informed; consulting with subordinate leaders before making a decision, if feasible.
- Listening to subordinates.

Commanders are responsible and accountable for their own actions and those of units under their charge. Commanders must weigh the repercussions of casualties, damage to the environment, and loss of equipment. They must also consider the level of public reaction to loss against national, strategic, operational, or tactical objectives. Commanders are also responsible for keeping Marines from falling into complacency. During sustained operations in particular, complacency can creep in because of accepting the status quo. For example, a unit can be deployed for several months and nothing may happen. The unit then gets very satisfied with itself and its performance. It gets conditioned to its initial circumstances—being well-armed, well-equipped, well-disciplined, and well-trained. It thinks it has risks under control and does not need to change. Such complacency, and the associated loss of situational awareness, can result in leaders and Marines taking a gamble instead of a prudent risk. A risk is the accepted result of an informed decision; a gamble is an uninformed bet or guess on a hopeful outcome. Leaders and Marines must clearly understand the difference.

Command is often exercised in conditions of uncertainty and ambiguity, where violence, danger, fear, and friction abound, and under the ever-present time constraints driven by operation tempo. Risk decisions are frequently required and dependent on the immediate situation. Judgment is required; a formula, rule, or checklist, by itself, is not appropriate under such circumstances.

Avoiding the zero-risk mindset requires the exercise of positive leadership. The commander's approach to managing risk should be through empowering leaders by pushing risk decisions as far down the chain of command as feasible within the next higher commander's guidance. Commanders must insist that subordinates exercise their freedom of action to act decisively and aggressively to complete assigned missions and promote success of the larger force. Subordinates must consider hazards outside their assigned responsibilities that impact the mission. The result is to encourage coordination and communication—laterally and up and down the chain of command. This requires and encourages initiative, which demands well-trained, determined, disciplined Marines.

Risk management is a two-way street. It is important that those involved in mission preparation and execution are fully aware of the amount of command involvement and actions necessary to control or remove hazards. The higher commander's guidance specifies the degree of damage or risk to subordinate units that he is willing to accept during the current operation. Subordinates ensure they understand and implement their commander's intent and guidance. If during the planning process, the accident and/or tactical residual risk exceed that which the higher commander is willing to accept, the subordinate informs his commander. He requests the resources necessary to mitigate the risk. If, during mission execution, the subordinate determines the risk is too great, he directs the development of additional or alternate controls, modifies or changes the COA. He should notify his next higher commander of his decision. Requiring subordinates to report to the higher commander when a risk decision point is reached during mission execution can result in paralysis.

The objective of managing risk is not to remove all risk, but to eliminate unnecessary risk. Commanders conduct tough, realistic training, knowing that they may put lives and property at risk in the course of military operations. Nothing is worth the cost of a life as the result of taking unnecessary risk. If an action will result in an unacceptable risk, measures should be taken to mitigate it. If the risk cannot be mitigated to an acceptable level, the action should not be executed. Circumstances may occur during mission execution when a decision to stop and defer execution of the operation should be made to avoid taking unwarranted risk. Such a situation will generally occur at the tactical level. For example, circumstances may determine if a trade-off between maintaining the momentum of the attack or risking fratricide or serious accidents is justified. For example, during Operation "Restore Hope" in Somalia, Task Force (TF) 1/7 was to send two large convoys to secure the interior of Somalia as quickly as possible. The commander assessed the situation and decided to make frequent "road halts," during which the convoy would stop to perform PMCS (preventive maintenance corrective service) on the vehicles and the drivers would rest to reduce driver fatigue. Consequently, they were successful in completing the mission with 100% of the vehicles, 100% of the Marines, and no accidents under the most difficult road conditions imaginable.

LEADERS

Many of the tasks identified for commanders apply to all leaders. Leaders' specific responsibilities in managing risk include—

- Establishing clear, feasible risk management policies and goals.
- Conducting detailed planning within time constraints; assessing each mission and task in terms of its risk; continuously reassessing risk as the mission and conditions change and experience is gained.
- Making informed risk decisions and establishing and clearly communicating risk guidance.
- Training the risk management process. Ensuring subordinates understand the who, what, where, when, how, and why of managing risk and how the process applies to their circumstances and assigned responsibilities.
- Examining how subordinates manage risk and how Marines protect themselves.
- Supervising and evaluating the unit's execution of risk controls during the mission to correct areas needing improvement.
- Advising his chain of command on risks and risk-reduction measures.
- Providing subordinates with feedback on their performance and ways to improve.
- Assessing the effectiveness of their unit's risk management program.
- Capturing and disseminating lessons learned to ensure they are continued from mission to mission so that others may benefit from the experience.

STAFFS

The chief of staff or executive officer is responsible for supervising integration of risk management across the staff. He coordinates development of risk reduction controls with emphasis on deconflicting controls that affect multiple functional areas and adjacent units. The staff officer helps the commander eliminate unnecessary risks by—

- Analyzing his functional area and applying risk management during the military decision-making process.
- Identifying constraints in the higher commander's risk guidance.
- Including hazards and their risks in the mission analysis briefing.
- Including a risk assessment for the commander's estimate.
- Considering the risk assessment in the operations estimate.
- Including risks and recommending ways to reduce their impact in the staff estimate.

- Implementing risk controls by coordinating and integrating them into the appropriate paragraphs and graphics of the five-paragraph order and into products such as SOPs and OPLANs.
- Establishing procedures and standards that are clear and practical.
- Determining the effectiveness of hazard/risk controls and continuously assessing their suitability, feasibility, and acceptability.
- Supervising, evaluating, and assessing the integration of risk management during an operation.
- Continuously identifying hazards, assessing initial and residual risks for each hazard, recommending control measures to reduce the risk to the force.
- Identifying and assessing hazards associated with complacency, especially during extended operations, and recommending appropriate actions to the commander.

At the operational level, staffs focus on hazards and their risks across the spectrum of protecting the force.

INDIVIDUALS

The level of expertise and maturity of the individual influence his proficiency in managing risk. Managing risk is subjective because its basis is individual judgment. Young Marines are routinely charged with executing hazard controls and risk reduction measures. By nature, they maybe impulsive risk takers. Their limited experience, coupled with an infallible attitude, can significantly increase the level of risk they are willing to accept. Their sense of indestructibility, motivation *(esprit de corps),* and willingness to achieve the mission at any cost also play a part.

Some Marines and individuals ignore existing standards and improvise their own. Due to inexperience or complacency, they become susceptible to—

- Overestimating their ability to respond to or recover from a hazardous incident—they become overconfident.
- Underestimating the level of risk posed by a hazard.

It is imperative that individuals understand and execute controls implemented by leaders and staffs.

Individuals must maintain situational awareness and self-discipline when they perform their duties. They must—

- Understand and apply risk management.
- Execute controls directed by their leaders—*perform to standards.*
- Carry risk management over into training and activities—both on and off duty.
- Look out for others—anyone has authority to halt something that is inherently unsafe.

INTEGRATION INTO TRAINING AND OPERATIONS

Integrating risk management into training and operations—

- Preserves the lives and well being of everyone.
- Conserves equipment, facilities, environmental resources, and combat power.

Risk management works best when incorporated into existing command training and operational planning cycles. They then act as risk management tools and provide for—

- Development of policy, goals, objectives, and priorities in the commander's quarterly training guidance.
- The commander's training assessment, by identifying hazards and risk controls.
- Systematic observation and assessment of the unit's risk management performance and feedback into the training management cycle and SOPs.

Leaders and Marines must have the skills, knowledge, and attitude to effectively manage risks inherent in all operations. Effective training helps Marines become proficient. It qualifies them technically and tactically, and as leaders, to accomplish the mission without unnecessary risk.

Doctrine developers must integrate risk management into planning for all Marine Corps processes, especially the training management cycle defined in MCRP-30a. Unit leaders and their staffs must continually assess and evaluate the integration of risk management into short-, near-, and long-term training plans. They must continually review METT-TSL to ensure that training is supported by realistic risk management objectives. In the past, unprepared or improperly trained units paid a high price for veteran status. The Marine Corps must learn from past experiences if it is to avoid repeating such losses.

Risk management must not be treated as an afterthought. It must be planned for up front. Leaders and managers of materiel acquisition, base operations, and industrial operations must budget risk control costs up front at the level of expected payback over the duration of the activity, or the life cycle of materiel/ weapons system.

When integrating risk management into sustained operations, leaders must consider increases in turbulence, personnel turnover, critical skill atrophy, and mission development. Leaders must continuously assess—

- The complexity of mission development and associated changing interrelationships with other agencies.
- The inclusion of civilian contractors as part of the force.
- The presence of the media.

These diverse elements need to be integrated into the risk management process.

Two key considerations relevant to managing risk in complex operational environments include—

- Understanding the culture of the indigenous population or society and its way of doing business. Leaders should respect their way of life and not interfere with local customs. Such interference could risk damage to relationships and increase the potential for introducing instability into the local society. Leaders must not, however, intentionally allow these considerations to endanger their force or its mission.
- The dynamics of managing risk and the way the leader and his subordinates manage risk. Leaders manage risk by—

    - having the right combination of well-trained, disciplined, well-armed, and well-equipped forces.
    - issuing clear guidance to minimize risk.
    - determining and implementing risk controls for carrying out the mission.
    - maintaining situational awareness, especially of vulnerabilities.
    - avoiding unnecessary accident risk.

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APPENDIX A

Risk Assessment Matrix

Risk **A**ssessment **C**ode:

1=Critical
2=Serious
3=Moderate
4=Minor
5=Negligible

		Probability of Occurrence			
		Likely **A**	Probably **B**	May **C**	Unlikely **D**
SEVERITY	**Cat I**	**1**	**1**	**2**	**3**
	Cat II	**1**	**2**	**3**	**4**
	Cat III	**2**	**3**	**4**	**5**
	Cat IV	**3**	**4**	**5**	**5**

Category I – The hazard may cause death, loss of facility/asset or result in grave damage to national interests.
Category II – The hazard may cause severe injury, illness, property damage, damage to national or service interests or degradation to efficient use of assets.
Category III – The hazard may cause minor injury, illness, property damage, damage to national, service or command interests or degradation to efficient use of assets.
Category IV – The hazard presents a minimal threat to personnel safety or health, property, national, service or command interests or efficient use of assets.

INSTRUCTIONS FOR ASSESSING HAZARDS:

A.) Determine the PROBABILITY of a given hazard's likeliness to occur (likely probably, may, or unlikely).
B.) Determine the SEVERITY of a given hazard based on the criteria represented in Categories I-IV.
C.) The point where the severity row and the probability column intersect defines the level of risk, and is known as the Risk Assessment Code (RAC). For example, a hazard with a "likely" probability to occur and a severity of "Category I" would result in a RAC of 1, or a risk level of "Critical." The RAC is then placed in the "Assess Hazards" column of the work sheet next to its corresponding hazard. After the controls are developed, determine the new RAC. This number is then placed in the "Residual Risk" column.

Sample Risk Management Worksheet

Mission or Task:	**Date/Time Group:**	**Date Prepared:**
Prepared By: Personnel and Position		
Phase of Mission or Task:		

Step 1 Identify Hazard	**Step 2 Assess Hazards**	**Step 3A Develop Controls**	**Step 3B Residual Risk**	**Step 4 How to Implement**	**Step 5A How to Supervise**	**Step 5B Evaluate**

SAMPLE

Determine overall mission/task risk level after controls implemented (Circle one):

LOW (L) MODERATE (M) High (H) EXTREMELY HIGH (E) **Page _____ of _____**

Example of Completed Risk Management Worksheet

Mission or Task: T-AVB "CAROLINA PATRIOT" 5-2000	**Date/Time Group:** 151000 MAY 2000	**Date Prepared:** 17 MAY 2000
Prepared By: Personnel and Position Maj. G. Brounty, USMC; Capt P. Sauls, USMC; GS-13 D.C. Weightman, MARFORPAC, Safety Manager		
Phase of Mission or Task: SHIP SECURITY/SELF-DEFENSE		

Step 1 Identify Hazard	Step 2 Assess Hazards	Step 3A Develop Controls	Step 3B Residual Risk	Step 4 How to Implement	Step 5A How to Supervise	Step 5B Evaluate
Terrorism - Waterborne	E (B-1)	+ Training of Key Personnel in CQB technique + Establish Challenge pass-words + Training on Weapon to include "Deadly Force" + React teams augmentation by MP's	E (B-1)	LOI SOP Training Plan Deadly Force riteria Drills Rehearsals Inspection	- Direct Supervision - Spot Checks - Drills - Inspection - Qualification on weapons	
- Airborne	E (B-1)	+ Training of personnel in Battle Station/Drills + Aerial Gunnery Qualification + Establish off ship support + Stringer Battery assigned to ship	E (B-1)	LOI SOP T/E Drills Rehearsals Inspection	- Direct Supervision - Spot Checks - Drills - Inspections - FAM-Firing of weapons	

Determine overall mission/task risk level after controls implemented (Circle one):

LOW (L) MODERATE (M) High (H) EXTREMELY HIGH (E)

Example of Completed Risk Management Worksheet

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Phase of Mission or Task: SHIP SECURITY/SELF-DEFENSE		

Step 1 Identify Hazard	Step 2 Assess Hazards	Step 3A Develop Controls	Step 3B Residual Risk	Step 4 How to Implement	Step 5A How to Supervise	Step 5B Evaluate
Attack at Pier Side	E (B-1)	+ Battle Station Drills + Repel Boarder Drills + CQB Drills + Training on weapons to include "Deadly Force" + Establish off ship security and support - Navy SEALs - Recon - Civilian SWAT + Battle Skills Training - Near and far ambush - Patrolling - Mines/boobytraps - Direct Act drills	E (B-1)	LOI SOP Antiterrorism training Drills Rehearsals Inspection	- Direct Supervision - Spot Checks - Rehearsal - FAM-Firing of weapons	

Determine overall mission/task risk level after controls implemented (Circle one):

LOW (L) MODERATE (M) High (H) EXTREMELY HIGH (E)